PHYSIOLOGY AND BIOMECHANICS

Thuesen, Erik V., Freya E. Goetz, and Steven H. D. Haddock
Bioluminescent organs of two deep-sea arrow worms, *Eukrohnia fowleri* and *Caecosagitta macrocephala*, with further observations on bioluminescence in chaetognaths 100

Parrin, Austin P., Sarah E. Netherton, Lori S. Bross, Catherine S. McFadden, and Neil W. Blackstone
Circulation of fluids in the gastrovascular system of a stoloniferan octocoral 112

Thorington, Glyne U., Virginia McAuley, and David A. Hessinger
Effects of satiation and starvation on nematocyst discharge, prey killing, and ingestion in two species of sea anemone 122

DEVELOPMENT AND REPRODUCTION

Holland, Nicholas D., and Linda Z. Holland
Laboratory spawning and development of the Bahama lancelet, *Asymmetron lucayanum* (Cephalochordata): fertilization through feeding larvae 132

ECOLOGY AND EVOLUTION

Zhang, Haibin, John Scarpa, and Matthew P. Hare
Differential fertilization success between two populations of eastern oyster, *Crassostrea virginica* 142

Baeza, J. A., and C. Piantoni
Sexual system, sex ratio, and group living in the shrimp *Thor amboinensis* (De Man): relevance to resource-monopolization and sex-allocation theories 151

Johnson, S. B., A. Warén, R. W. Lee, Y. Kano, A. Kaim, A. Davis, E. E. Strong, and R. C. Vrijenhoek
Rubyspira, new genus and two new species of bone-eating deep-sea snails with ancient habits 166

Verhoeven, Anne B., Meghan W. Durham-Colleran, Tony Pierson, William T. Boswell, and Monique L. van Hoek
Francisella philomiragia biofilm formation and interaction with the aquatic protist *Acanthamoeba castellanii* 178

No. 3: December 2010

SYMBIOSIS AND PARASITOLOGY

Weisz, Jeremy B., Andrew J. Massaro, Blake D. Ramsby, and Malcolm S. Hill
Zooxanthellar symbionts shape host sponge trophic status through translocation of carbon 189

NEUROBIOLOGY AND BEHAVIOR

Reuter, Kim E., and Don R. Levitan
Influence of sperm and phytoplankton on spawning in the echinoid *Lytechinus variegatus* 198

Ziegler, Tracy A., Jonathan H. Cohen, and Richard B. Forward, Jr.
Proximate control of diel vertical migration in phyllosoma larvae of the Caribbean spiny lobster *Panulirus argus* 207

PHYSIOLOGY AND BIOMECHANICS

Bone, Elisa K., and Michael J. Keough
Does polymorphism predict physiological connectedness? A test using two encrusting bryozoans 220

ECOLOGY AND EVOLUTION

Checa, Antonio G., and Elizabeth M. Harper
Spikey bivalves: intra-periostracal crystal growth in Anomalodesmatans 231

Bayha, Keith M., and Michael N Dawson
New family of allomorphic jellyfishes, Drymonematidae (Scyphozoa, Discomedusae), emphasizes evolution in the functional morphology and trophic ecology of gelatinous zooplankton 249

Borgonie, Gaëtan, Manuel Dierick, Wouter Houthoofd, Maxime Willems, Patric Jacobs, and Wim Bert
Refuge from predation, the benefit of living in an extreme acidic environment? 268

RAPID COMMUNICATIONS

Maliska, Max E., and Billie J. Swalla
Molgula pugetiensis is a Pacific tailless ascidian within the Roscovita clade of molgulids 277

Longley, Roger D.
Comparison of control of pedal sole cilia in the snails *Lymnaea stagnalis appressa* and *Helisoma trivolvis* 283

* * *

Index for Volume 219 288

INDEX

A

Abrupt change in food environment induces cloning in plutei of *Dendraster excentricus*, 38

ALLAM, BASSEM, see Emmanuelle Pales Espinosa, 50

B

BAEZA, J. A., AND C. PIANTONI, Sexual system, sex ratio, and group living in the shrimp *Thor amboinensis* (De Man): relevance to resource-monopolization and sex allocation theories, 151

BAYHA, KEITH M., AND MICHAEL N DAWSON, New family of allomorphic jellyfishes, Drymonematidae (Scyphozoa, Discomedusae), emphasizes evolution in the functional morphology and trophic ecology of gelatinous zooplankton, 249

BERT, WIM, see Gaëtan Borgonie, 268

Bioluminescent organs of two deep-sea arrow worms, *Eukrohnia fowleri* and *Caecosagitta macrocephala*, with further observations on bioluminescence in chaetognaths, 100

BLACKSTONE, NEIL W., see Austin P. Parrin, 112

BONE, ELISA K., AND MICHAEL J. KEOUGH, Does polymorphism predict physiological connectedness? A test using two encrusting bryozoans, 220

BORGIOLI, G., see A. Ugolini, 72

BORGONIE, GAËTAN, MANUEL DIERICK, WOUTER HOUTHOOFD, MAXIME WILLEMS, PATRIC JACOBS, AND WIM BERT, Refuge from predation, the benefit of living in an extreme acidic environment?, 268

BOSWELL, WILLIAM T., see Anne B. Verhoeven, 178

BRICELJ, V. MONICA, see Heather M. Robbins, 61

BROSS, LORI S., see Austin P. Parrin, 112

C

CHECA, ANTONIO G., AND ELISABETH M. HARPER, Spikey bivalves: intraperiostracal crystal growth in Anomalodesmatans, 231

Circulation of fluids in the gastrovascular system of a stoloniferan octocoral, 112

COHEN, JONATHAN H., see Tracy A. Ziegler, 207

Comparison of control of pedal sole cilia in the snails *Lymnaea stagnalis appressa and Helisoma trivolvis*, 283

Corrections for Volume 216, pp. 115, 116, 117, 122, 123 in the article titled "Glutamic transmission in hydra: NMDA/D-serine affects the electrical activity of the body and tentacles of *Hydra vulgaris* (Cnidaria, Hydrozoa)" *Biol. Bull.* 216: 113–125, 219 (2): viii

D

DAVIS, A., see S. B. Johnson, 166

DAWSON, MICHAEL N, see Keith M. Bayha, 249

DIERICK, MANUEL, see Gaëtan Borgonie, 268

Differential fertilization success between two populations of eastern oyster, *Crassostrea virginica*, 142

Does polymorphism predict physiological connectedness? A test using two encrusting bryozoans, 220

DOIHARA, TAKUYA, see Yuji Miguchi, 12

DUMAS, THEODORE C., see Emily M. Stoneham, 81

DURHAM-COLLERAN, MEGHAN W., see Anne B. Verhoeven, 178

E

Effects of satiation and starvation on nematocyst discharge, prey killing, and ingestion in two species of sea anemone, 122

Effects of selfing on offspring survival and reproduction in a colonial simultaneous hermaphrodite (*Bugula stolonifera*, Bryozoa), 27

F

FORWARD, RICHARD B., JR., see Tracy A. Ziegler, 207

FUJIKURA, KATSUNORI, see Kyle C. Reynolds, 7

G

GALANTI, G., see A. Ugolini, 72

GOETZ, FREYA E., see Erik V. Thuesen, 100

H

HADDOCK, STEVEN H. D., see Erik V. Thuesen, 100

HAMADA, FUMIHIKO, see Yuji Miguchi, 12

HARE, MATTHEW P., see Haibin Zhang, 142

HARIYAMA, T., see A. Ugolini, 72

HARPER, ELISABETH M., see Antonio G. Checa, 231

HASSAN, DAHLIA, see Emmanuelle Pales Espinosa, 50

HESSINGER, DAVID A., see Glyne U. Thorington, 122

HILL, MALCOLM S., see Jeremy B. Weisz, 189

HIRANO, YOSHIAKI, see Taro Maeda, 17

HOLLAND, LINDA Z., see Nicholas D. Holland, 132

HOLLAND, NICHOLAS D., AND LINDA Z. HOLLAND, Laboratory spawning and development of the Bahama lancelet, *Asymmetron lucayanum* (Cephalochordata): fertilization through feeding larvae, 132

HOUTHOOFD, WOUTER, see Gaëtan Borgonie, 268

I

Francisella philomiragia biofilm formation and interaction with the aquatic protist *Acanthamoeba castellanii*, 178

In vivo effects of brown tide on the feeding function of the gill of the northern quahog *Mercenaria mercenaria* (Bivalvia: Veneridae), 61

Molgula pugetiensis is a Pacific tailless ascidian within the Roscovita clade of molgulids, 277

Rubyspira, new genus and two new species of bone-eating deep-sea snails with ancient habits, 166

Index for Volume 219, 288

Influence of sperm and phytoplankton on spawning in the echinoid *Lytechinus variegatus*, 198

J

JACOBS, PATRIC, see Gaëtan Borgonie, 268

JOHNSON, COLLIN H., Effects of selfing on offspring survival and reproduction in a colonial simultaneous hermaphrodite (*Bugula stolonifera*, Bryozoa), 27

JOHNSON, S. B., A. WARÉN, R. W. LEE, Y. KANO, A. KAIM, A. DAVIS, E. E. STRONG, AND R. C. VRIJENHOEK, *Rubyspira*, new genus and two new species of bone-eating deep-sea snails with ancient habits, 166

K

KAIM, A., see S. B. Johnson, 166

KAJITA, TADASHI, see Taro Maeda, 17

KANO, Y., see S. B. Johnson, 166

KASS-SIMON, G., see J. C. Kay, 219 (2): viii

KAY, J. C., AND G. KASS-SIMON, Corrections for Volume 216, pp. 115, 116, 117, 122, 123 in the article titled "Glutamic transmission in hydra:

NMDA/D-serine affects the electrical activity of the body and tentacles of *Hydra vulgaris* (Cnidaria, Hydrozoa)" *Biol. Bull.* 216: 113–125, 219 (2): viii
KEOUGH, MICHAEL J., see Elisa K. Bone, 220
KIM, STACY, see Kyle C. Reynolds, 7
KOBAYASHI, NAOTO, see Yuji Miguchi, 12
KOJIMA, SHIGEAKI, see Kyle C. Reynolds, 7

L

Laboratory spawning and development of the Bahama lancelet, *Asymmetron lucayanum* (Cephalochordata): fertilization through feeding larvae, 132
LEE, R. W., see S. B. Johnson, 166
LEVITAN, DON R., see Kim E. Reuter, 198
Ligand field theory and the origin of life as an emergent feature of the periodic table of elements, 1
LONGLEY, ROGER D., Comparison of control of pedal sole cilia in the snails *Lymnaea stagnalis appressa and Helisoma trivolvis*, 283

M

MAEDA, TARO, TADASHI KAJITA, TADASHI MARUYAMA, AND YOSHIAKI HIRANO, Molecular phylogeny of the Sacoglossa, with a discussion of gain and loss of kleptoplasty in the evolution of the group, 17
MALISKA, MAX E., AND BILLIE J. SWALLA, *Molgula pugetiensis* is a Pacific tailless ascidian within the Roscovita clade of molgulids, 277
MARUYAMA, TADASHI, see Taro Maeda, 17
MASSARO, ANDREW J., see Jeremy B. Weisz, 189
MATSUDA, SEIJI, see Yuji Miguchi, 12
MCAULEY, VIRGINIA, see Glyne U. Thorington, 122
MCDONALD, KATHRYN A., AND DAWN VAUGHN, Abrupt change in food environment induces cloning in plutei of *Dendraster excentricus*, 38
MCFADDEN, CATHERINE S., see Austin P. Parrin, 112
MERCATELLI, L., see A. Ugolini, 72
MIGUCHI, YUJI, HIROMI TAKATA, TAKUYA DOIHARA, KYOJY MIYAWAKI, TETSUYA SHIMOKAWA, FUMIHIKO HAMADA, NAOTO KOBAYASHI, AND SEIJI MATSUDA, Morphological maturation level of the esophagus is associated with the number of circumesophageal muscle fibers during archenteron formation in the starfish *Patiria (Asterina) pectinifera*, 12
MIYAKE, HIROSHI, see Kyle C. Reynolds, 7
MIYAWAKI, KYOJY, see Yuji Miguchi, 12
Molecular phylogeny of the Sacoglossa, with a discussion of gain and loss of kleptoplasty in the evolution of the group, 17
MOROWITZ, HAROLD J., VIJAYASARATHY SRINIVASAN, AND ERIC SMITH, Ligand field theory and the origin of life as an emergent feature of the periodic table of elements, 1
Morphological maturation level of the esophagus is associated with the number of circumesophageal muscle fibers during archenteron formation in the starfish *Patiria (Asterina) pectinifera*, 12

N

NETHERTON, SARAH E., see Austin P. Parrin, 112
New family of allomorphic jellyfishes, Drymonematidae (Scyphozoa, Discomedusae), emphasizes evolution in the functional morphology and trophic ecology of gelatinous zooplankton, 249
New molluscan larval form: brooding and development in a hydrothermal vent gastropod, *Ifremeria nautilei* (Provannidae), 7

P

PALES ESPINOSA, EMMANUELLE, DAHLIA HASSAN, J. EVAN WARD, SANDRA E. SHUMWAY, AND BASSEM ALLAM, Role of epicellular molecules in the selection of particles by the blue mussel, *Mytilus edulis*, 50
PARRIN, AUSTIN P., SARAH E. NETHERTON, LORI S. BROSS, CATHERINE S. MCFADDEN, AND NEIL W. BLACKSTONE, Circulation of fluids in the gastrovascular system of a stoloniferan octocoral, 112
Photoresponses of the compound eye of the sandhopper *Talitrus saltator* (Crustacea, Amphipoda) in the ultraviolet-blue range, 72
PIANTONI, C., see J. A. Baeza, 151
PIERSON, TONY, see Anne B. Verhoeven, 178
Proximate control of diel vertical migration in phyllosoma larvae of the Caribbean spiny lobster *Panulirus argus*, 207

R

RAMSBY, BLAKE D., see Jeremy B. Weisz, 189
Refuge from predation, the benefit of living in an extreme acidic environment?, 268
REUTER, KIM E., AND DON R. LEVITAN, Influence of sperm and phytoplankton on spawning in the echinoid *Lytechinus variegatus*, 198
REYNOLDS, KYLE C., HIROMI WATANABE, ELLEN E. STRONG, TAKENORI SASAKI, KATSUYUKI UEMATSU, HIROSHI MIYAKE, SHIGEAKI KOJIMA, YOHEY SUZUKI, KATSUNORI FUJIKURA, STACY KIM, AND CRAIG M. YOUNG, New molluscan larval form: brooding and development in a hydrothermal vent gastropod, *Ifremeria nautilei* (Provannidae), 7
ROBBINS, HEATHER M., V. MÓNICA BRICELJ, AND J. EVAN WARD, *In vivo* effects of brown tide on the feeding function of the gill of the northern quahog *Mercenaria mercenaria* (Bivalvia: Veneridae), 61
Role of epicellular molecules in the selection of particles by the blue mussel, *Mytilus edulis*, 50
Rules of engagement: factors that regulate activity-dependent synaptic plasticity during neural network development, 81

S

SANDERS, ERIN M., see Emily M. Stoneham, 81
SANYAL, MOHIMA, see Emily M. Stoneham, 81
SASAKI, TAKENORI, see Kyle C. Reynolds, 7
SCARPA, JOHN, see Haibin Zhang, 142
Sexual system, sex ratio, and group living in the shrimp *Thor amboinensis* (De Man): relevance to resource-monopolization and sex allocation theories, 151
SHIMOKAWA, TETSUYA, see Yuji Miguchi, 12
SHUMWAY, SANDRA E., see Emmanuelle Pales Espinosa, 50
SMITH, ERIC, see Harold J. Morowitz, 1
Spikey bivalves: intra-periostracal crystal growth in Anomalodesmatans, 231
SRINIVASAN, VIJAYASARATHY, see Harold J. Morowitz, 1
STONEHAM, EMILY M., ERIN M. SANDERS, MOHIMA SANYAL, AND THEODORE C. DUMAS, Rules of engagement: factors that regulate activity-dependent synaptic plasticity during neural network development, 81
STRONG, E. E., see S. B. Johnson, 166
STRONG, ELLEN E., see Kyle C. Reynolds, 7
SUZUKI, YOHEY, see Kyle C. Reynolds, 7
SWALLA, BILLIE J., see Max E. Maliska, 277

T

TAKATA, HIROMI, see Yuji Miguchi, 12
THORINGTON, GLYNE U., VIRGINIA MCAULEY, AND DAVID A. HESSINGER, Effects of satiation and starvation on nematocyst discharge, prey killing, and ingestion in two species of sea anemone, 122
THUESEN, ERIK V., FREYA E. GOETZ, AND STEVEN H. D. HADDOCK, Bioluminescent organs of two deep-sea arrow worms, *Eukrohnia fowleri* and *Caecosagitta macrocephala*, with further observations on bioluminescence in chaetognaths, 100

U

UEMATSU, KATSUYUKI, see Kyle C. Reynolds, 7
UGOLINI, A., G. BORGIOLI, G. GALANTI, L. MERCATELLI, AND T. HARIYAMA, Photoresponses of the compound eye of the sandhopper *Talitrus saltator* (Crustacea, Amphipoda) in the ultraviolet-blue range, 72

V

VAN HOEK, MONIQUE L., see Anne B. Verhoeven, 178
VAUGHN, DAWN, see Kathryn A. McDonald, 38
VERHOEVEN, ANNE B., MEGHAN W. DURHAM-COLLERAN, TONY PIERSON, WILLIAM T. BOSWELL, AND MONIQUE L. VAN HOEK, *Francisella phi-*

lomiragia biofilm formation and interaction with the aquatic protist *Acanthamoeba castellanii*, 178
VRIJENHOEK, R. C., see S. B. Johnson, 166

W

WARD, J. EVAN, see Emmanuelle Pales Espinosa, 50; Heather M. Robbins, 61
WARÉN, A, see S. B. Johnson, 166
WATANABE, HIROMI, see Kyle C. Reynolds, 7
WEISZ, JEREMY B., ANDREW J. MASSARO, BLAKE D. RAMSBY, AND MALCOLM S. HILL, Zooxanthellar symbionts shape host sponge trophic status through translocation of carbon, 189
WILLEMS, MAXIME, see Gaëtan Borgonie, 268

Y

YOUNG, CRAIG M., see Kyle C. Reynolds, 7

Z

ZHANG, HAIBIN, JOHN SCARPA, AND MATTHEW P. HARE, Differential fertilization success between two populations of eastern oyster, *Crassostrea virginica*, 142
ZIEGLER, TRACY A., JONATHAN H. COHEN, AND RICHARD B. FORWARD, JR., Proximate control of diel vertical migration in phyllosoma larvae of the Caribbean spiny lobster *Panulirus argus*, 207
Zooxanthellar symbionts shape host sponge trophic status through translocation of carbon, 189